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## MODEL OF PEDAGOGICAL FORECASTING'S SYSTEM OF COMPLETE GENERAL SECONDARY EDUCATION'S CONTENT

Reforming the national education system, the formation of a new Ukrainian school raise the issue of theoretical and methodological support for pedagogical forecasting of the content of complete general secondary education. The article is devoted to the development of a model of the system of pedagogical forecasting of the content of complete general secondary education, an important and unsolved part of this general problem. The article defines the content of the concept of a system of pedagogical forecasting of the content of complete general secondary education, characterizes the component composition of this system, develops its theoretical model. The presented scientific results will be the basis for further applied research related to experimental testing and implementation of the system of pedagogical forecasting of the content of complete general secondary education. They will be used in the development and implementation of methods for forecasting the specified content at different levels of management of the system of complete general secondary education.

**Keywords:** content of complete general secondary education; pedagogical forecasting's system; model.

**Problem statement.** The problem of developing theoretical and methodological principles of pedagogical forecasting of the content of complete general secondary education is quite relevant for the development of fundamental and applied knowledge in the field of educational, pedagogical sciences, and its successful solution is necessary to ensure advanced development of the national system of complete secondary education. This statement is supported by the links of this problem with important scientific tasks, namely: the development of theoretical and methodological support for reforming the national system of complete general secondary education; ensuring the further development of scientific disciplines, the subject field of which includes the study of the theory and practice of pedagogical and didactic forecasting (first of all, educational-pedagogical and didactic forecasting); enrichment of the theory of the content of education due to the implementation of prognostic knowledge; development of the theory of forecasting the content of education. Equally

important are the practical tasks involved. Among these tasks, several main ones should also be singled out, namely: modernization of the content of complete general secondary education; creation of organizational and methodological conditions for its advanced construction on the basis of forecasts of development of the society and technologies, future requirements to human qualities; training of pedagogical staff of general secondary educational institutions to forecast and construct a variable component of the content of this education; development and testing of methods and tools, organizational forms of teaching and education that will correspond to the updated content of complete general secondary education, etc.

One of the key components of the theoretical and methodological basis for forecasting the content of complete general secondary education should be the system for forecasting this content, which should be presented in the form of a model.

**Analysis of recent research and publications on the problem.** It should be noted that the problem of developing theoretical and methodological principles for forecasting the content of complete general secondary education has not attracted the attention of Ukrainian scientists, is poorly investigated. The results of the search and processing of literary sources indicate the absence of fundamental works (scientific monographs), a small amount of articles and other scientific publications of domestic scientists [6] - [9] on this issue.

The important challenge for the study on the problem of forecasting the content of complete general secondary education was the analysis of scientific publications on solving general problems of social forecasting and forecasting the development of education, which include scientific works of I.V. Bestuzhev-Lada (author and scientific editor) [1], B.S. Hershunskyi [2], O.M. Topuzov [3]. In the work of a large team of authors led by I.V. Bestuzhev-Lada, the definitions of the concepts of a forecasting system, forecasting object and forecasting background of the forecasting object are given, the invariant algorithm (sequence of stages) of forecasting is highlighted and described [1]. B.S. Hershunskyi defined the concept of educational and pedagogical forecasting, substantiated the content of education as one of the important objects of educational and pedagogical forecasting, proposed a classification of the forecasting methods in the field of education [2]. O.M. Topuzov identified priority areas of prognostic research in terms of reforming the domestic education system, justified the urgency of "forecasting changes in the content of education", which will meet the predicted requirements and needs of the society and the individual, will give the opportunity to achieve the goals and objectives of education in the future» [2, p. 35].

The theoretical foundations of the study also include the propositions substantiated by the author during the development of a theoretical model for forecasting the development of general secondary education [4] and a forecast model for the development of general secondary education in Ukraine [5]. These include the levels of management of the general secondary education system defined and substantiated by the author (level of a teacher, structural subdivision of a school, school, community, region, national and international levels), at which its development can be predicted [4, p. 130], the component composition of the theoretical model for forecasting the development of general secondary education (managerial, informational, resource, procedural, methodological, resultative) [4, p. 129], scenarios for the development of the general secondary education system of Ukraine, which take into account the factors and variants of the transformation of the content of education [5, p. 49-51].

As mentioned above, only some articles and other scientific publications of domestic scientists are devoted to the research problem. Such scientific literary sources include the article by O.M. Topuzov and D.O. Puzikov, which highlighted and characterized the component composition (conditions and factors) of the forecast background of the content of general secondary education (scientific-technical, economic, sociological, sociocultural, organizational-political, international) [5, p. 49-51]. These also include three publications of the author (made in conference proceedings) [7] - [9]. The first publication identifies (but does not characterize) the components of the system of forecasting the content of general secondary education (subject, object, target, content, procedural-

activity, methodological (instrumental), resource, resultative components) [7]. The second defines and substantiates the levels of organization of forecasting the content of general secondary education (international (interstate), state, regional, local, the level of general secondary educational institution, the structural subdivision of a school and the level of a teacher) [8, p. 361-362]. The third publication is devoted to the classification and characterization of the subjects of forecasting the content of general secondary education [9].

*Parts of the general problem which have not been solved before.* The results of the analysis of scientific literature sources on the research problem show that at least several parts of this general problem have not been solved before, namely: the content of the concept of a pedagogical forecasting system of complete general secondary education has not been defined, the components of this system are not characterized, the model of the system of pedagogical forecasting of the content of complete general secondary education is not created. Thus, the results of the analysis of literature sources give grounds to formulate the purpose of this article.

**Purpose statement.** The purpose of the article is to develop and substantiate a model of the system of forecasting the content of general secondary education. To achieve this goal it is necessary to perform a number of tasks, namely: to define the content of the concept of a system of pedagogical forecasting of the content of complete general secondary education; identify and describe the main components of this system; to develop a model of the system of forecasting the content of complete general secondary education.

**Theoretical foundations of the study.** The theoretical foundations of the scientific study, the course and main results of which are presented in this article, are the propositions of general scientific methodological approaches, namely: terminological, system, system-activity, information approaches. In addition, fundamental knowledge of didactics (on the content of education as a didactic category, levels of organization of the content of complete general secondary education, etc.), educational-pedagogical and didactic prognostics (on the content and specifics of forecasting in education) became important for the study.

The propositions of the terminological approach were used to define the meaning of the concept of a system of pedagogical forecasting of the content of complete general secondary education. The propositions of system, system-activity and information approaches - for highlighting and giving the characteristics of the components of this system, development of its theoretical model.

**Methodology of the study.** Several theoretical and empirical research methods were used to obtain the scientific results presented in this article. The sequence of these methods presents the methodology of this study. The method of analysis of scientific literature sources was used to process the scientific works, highlighting in them scientific information about parts of the general problem, which have already been studied by scientists. For a comprehensive study of this information, determining the content of the concept of a system of pedagogical forecasting of the content of complete secondary education, formulating own theoretical propositions and conclusions there were used theoretical methods of research (methods of elementary-theoretical and structural-genetic analysis and synthesis, abstraction, deductive method, theoretical generalization, etc.). The modeling method was used to develop a theoretical model of the system of pedagogical forecasting of the content of complete general secondary education.

**Discussion.** First of all, let's define the meaning of the concept of a system of pedagogical forecasting of the content of complete general secondary education. Forecasting is a complex activity aimed at making scientifically sound forecasts, the process of their development [1, p. 393]. The adjective "pedagogical" outlines the scope of professional activity (cognitive and practical), in which the process of forecasting is running, to ensure the functioning and development of which it is aimed, the specifics of which must be taken into account. In addition, it is a definition of the specifics and purpose of the forecasts that will

be the results of forecasting. A forecasting system is considered in the scientific literature as "a set of its tools that functions in accordance with the basic principles of forecasting" [1, p. 394], "an orderly, holistic set of components of this activity, the functioning of which ensures the development of sound forecasts" [7, p. 65]. Thus, a system of pedagogical forecasting of the content of complete general secondary education is a set of components of theoretically grounded prognostic activities aimed at making thorough forecasts of the content of complete general secondary education.

The development of a theoretical model of this system involves the creation of an ideal image of this object, which will reflect its structure with the help of scientific means (pedagogical modeling), will allow to gain new knowledge about it. In the component structure of the system of pedagogical forecasting of the content of general secondary education modeled by the author four components are distinguished, namely: conceptual-target, content, operational-procedural, resultative.

For a more concise presentation of the main material of the study, we combine the provision of a thorough description of the components of the system of pedagogical forecasting of the content of complete general secondary education with a description of the components of the theoretical model that reflects this system.

The *conceptual-target component* should include methodological approaches, principles and theoretical propositions that establish the process of pedagogical forecasting of the content of general secondary education, goals and tasks of forecasting this content.

The *content component* covers subjects, objects, organizational levels, forecasting resources. The subjects of pedagogical forecasting of the content of complete general secondary education include "individuals and / or legal entities (temporary teams of individuals) that have the necessary professional level, purposefully carry out such activities" [7, p. 65]. The *objects of forecasting* are the holistic content of complete general secondary education or its components, selected in accordance with its hierarchical organizational structure; "changes that occur (should occur) in this content (in its component composition, structure, etc.); forecast background of the object of forecasting (a set of external (social) conditions and factors that affect the development of educational content)" [7, p. 65]. The main resources of pedagogical forecasting of the content of complete general secondary education include personnel, financial, informational, methodological, logistical and other resources.

The *operational-procedural component* of the system covers forecasting tools and forecasting stages. The set of successive stages of pedagogical forecasting of the content of complete general secondary education can be distinguished on the basis of the invariant forecasting algorithm, which is substantiated in works on educational and pedagogical forecasting [1, p. 22-23]. Based on it, the main stages of pedagogical forecasting of the content of complete general secondary education include the following: *pre-forecast orientation*, *creation of the program for forecasting* a specific component of the content of complete general secondary education (definition of the goals and tasks, forecasting parameters, its tools, forecasting participants, etc.); *creation of the initial model of forecasting* a specific component of this content (through the analysis of curricula, textbooks, surveys of participants in the educational process and educational experts, etc.); *study of the forecast background* (as a rule, it includes the search and processing of forecasts from related areas of public practice that affect (will affect in the future) the development of a particular component of the content of education); *development of forecast scenarios* for the development of a specific component of the content of education; *creation of a forecast model* for this component of the content of general secondary education; *forecast verification* (usually through a survey of educational experts [1, p. 22]); *making recommendations for the subjects of designing the content* of complete general secondary education to take into account the forecast in their activities. Then the cycle of stages can be repeated [1, p. 23].

The tools of pedagogical forecasting of the content of complete general secondary education include general scientific (theoretical and empirical) and interscientific methods (e.g., methods of expert assessments, modeling, analysis of documentation, etc.), methods of particular sciences (e.g., psychology) [2]. This toolkit should also include "modern information-communication technologies and software that can be used to construct an information environment for predicting the content of general secondary education" [7, p. 65].

The *resultative component* of the system of pedagogical forecasting of the content of complete general secondary education includes the results of forecasting activities, which can be divided into three groups.

Firstly, these are the forecasts of the content of complete general secondary education and related forecasts about the dynamics of conditions and factors of the forecast background of this forecasting object. Forecasts of the content of complete general secondary education should be considered in accordance with the hierarchical levels of organization of this content [10, p. 8-9]. Thus, there are at least six types of forecasts of the content of complete general secondary education, namely: the holistic content of complete general secondary education; educational branches (or cycles of subjects); subjects; courses (integrated courses); sections and topics. An important problem issue, which is worth a separate study, is the substantiation of forecasts of the content of educational material of didactic units of the learning process [11, p. 75-76].

Secondly, these are the recommendations to the subjects that directly construct the content of education, as well as to the education management bodies to take these forecasts into account in the regulatory framework, educational and methodological literature, etc.

Thirdly, an important result of forecasting the content of complete general secondary education are forecasting models, which (with periodic adjustments) can update the forecasts of individual components of a hierarchically organized system of the content of complete general secondary education.

**Conclusions and prospects for further research.** The results of the study make it possible to formulate its conclusions that correspond to the purpose and tasks of the article.

The concept of a system of pedagogical forecasting of the content of complete general secondary education, theoretical propositions that reflect the component composition of this system, characterize its components, represent it in the form of a theoretical model is an important component of theoretical and methodological principles of pedagogical forecasting of complete general secondary education.

The system of pedagogical forecasting of the content of complete general secondary education is a set of components of theoretically grounded prognostic activity aimed at making thorough forecasts of the content of complete general secondary education.

As a part of the system of pedagogical forecasting of the content of complete general secondary education it is possible to distinguish four components, namely: conceptual-target (methodological approaches, principles and theoretical propositions, purposes and tasks of forecasting), content (subjects, objects, organizational levels, resources of forecasting), operational-procedural (forecasting tools and forecasting stages), resultative (forecasts of the content of complete general secondary education in accordance with its hierarchical structure, recommendations to the subjects of constructing this content to take these forecasts into account in their activities, forecasting models developed in the forecasting process).

Prospects for further research on the problem are associated with experimental testing and implementation of a system of pedagogical forecasting of the content of complete secondary education, development and implementation of practical forecasting tools of this system.



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### МОДЕЛЬ СИСТЕМИ ПЕДАГОГІЧНОГО ПРОГНОЗУВАННЯ ПОВНОЇ ЗАГАЛЬНОЇ СЕРЕДНЬОЇ ОСВІТИ

Реформування національної системи освіти, становлення нової української школи актуалізують проблему теоретико-методологічного забезпечення педагогічного прогнозування змісту повної загальної середньої освіти. Статтю присвячено розробленню системи педагогічного прогнозування змісту повної загальної середньої освіти, важливий і не вирішений раніше частині цієї загальної проблеми. У статті визначено зміст поняття «система педагогічного прогнозування змісту повної загальної середньої освіти», котрий розглядається як сукупність компонентів теоретично узasadженої прогностичної діяльності, спрямованої на вироблення ґрунтовних прогнозів змісту повної загальної середньої освіти. Охарактеризовано компонентний склад цієї системи, до якого належать концептуально-цільовий (методологічні підходи, принципи й теоретичні положення, цілі й завдання), змістовий (суб'єкти, об'єкти, організаційні рівні, ресурси, необхідні для прогнозування змісту повної загальної середньої освіти), операційно-процесуальний (прогностичний інструментарій та етапи прогнозування), результативний (прогнози змісту повної загальної середньої освіти відповідно до його ієрархічної структури, рекомендації суб'єктам конструювання цього змісту щодо врахування цих прогнозів у їхній діяльності, прогностичні моделі, розроблені в процесі прогнозування) компонент. Розроблено теоретичну модель системи педагогічного прогнозування змісту повної загальної середньої освіти. Презентовані наукові результати стануть основою подальших прикладних наукових досліджень, пов'язаних з експериментальною апробацією і впровадженням системи педагогічного прогнозування змісту повної загальної середньої освіти. Вони застосовуватимуться в ході розроблення і впровадження методик прогнозування цього змісту на різних рівнях управління системою повної загальної середньої освіти.

**Ключові слова:** зміст повної загальної середньої освіти; система педагогічного прогнозування; модель.

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### МОДЕЛЬ СИСТЕМИ ПЕДАГОГІЧЕСКОГО ПРОГНОЗИРОВАНИЯ ПОЛНОГО ОБЩЕГО СРЕДНЕГО ОБРАЗОВАНИЯ

Реформирование национальной системы образования, становление новой украинской школы актуализируют проблему теоретико-методологического обеспечения педагогического прогнозирования содержания полного общего среднего образования. Статья посвящена разработке системы педагогического прогнозирования содержания полного общего среднего образования, важной и не решенной ранее части этой общей проблемы. В статье определено содержание понятия «система педагогического прогнозирования содержания полного общего среднего образования», охарактеризован компонентный состав этой системы, разработана ее теоретическая модель. Представленные в статье научные результаты станут основой последующих прикладных научных исследований, направленных на экспериментальную апробацию и внедрение этой системы. Они также могут применяться в ходе разработки и внедрения методик прогнозирования содержания такого образования на разных уровнях управления системой полного общего среднего образования.

**Ключевые слова:** содержание полного общего среднего образования; система педагогического прогнозирования; модель.